R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Claims 1 and 8 have been amended to recite that the pulse generating unit generates a pulse signal formed in a step-like wave in which at least one of a rise and fall of the pulse signal is changed in a step-like manner in a predetermined bit string between first and second predetermined amplitude values to provide a step at an amplitude between the first and second predetermined amplitude values. See, for example, Figs. 3A and 3B.

No new matter has been added, and it is respectfully requested that the amendments be approved and entered.

ALLOWABLE SUBJECT MATTER

The Examiner's indication of the allowability of the subject matter of claims 2-7 and 9-14 is respectfully acknowledged.

These claims, however, have not been rewritten in independent form at this time since, as set forth in detail hereinbelow, it is respectfully submitted that their respective parent claims also recite allowable subject matter.

THE PRIOR ART REJECTION

Claims 1, 8 and 15 were rejected under 35 USC 103 as being obvious in view of the combination of USP 4,188,580 ("Nicolai et al") and USP 6,111,532 ("Hirano et al"). This rejection, however, is respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in amended independent claim 1, a pulse pattern generator is provided which comprises a pulse generating unit which generates a pulse signal formed in a step-like wave in which at least one of a rise and fall of the pulse signal is changed in a step-like manner in a predetermined bit string between first and second predetermined amplitude values to provide a step at an amplitude between the first and second predetermined amplitude values. As recited in independent claim 1, the pulse pattern generator also comprises a lowpass filter which smooths the pulse signal formed in the step-like wave and generated by the pulse generating unit, and outputs a smoothed pulse signal, and an amplitude-value setting unit which adjusts an amplitude value of the step-like wave that forms the pulse signal based on the amplitude value, in order to set an eye waveform at a predetermined eye closure when an output from the lowpass filter is eye-patterned, wherein the pulse signal having a desired pulse pattern with the predetermined eye

closure set by the amplitude-value setting unit is configured as output from the lowpass filter.

According to the present invention as recited in amended independent claim 8, moreover, a communication device evaluation system utilizing a pulse pattern generator is provided which comprises a pulse pattern generator essentially as recited in amended independent claim 1 and a characteristic evaluation device which evaluates predetermined characteristics of a device under test based on the pulse signal having the desired pulse pattern with the predetermined eye closure output from the lowpass filter of the pulse pattern generator.

A pulse signal formed in a step-like wave in accordance with the invention is shown in Fig. 3B wherein at least one of a rise and fall of the pulse signal is changed in a step-like manner in a predetermined bit string between first and second predetermined amplitude values (a and b) to provide a step (at level e or f) at an amplitude between the first and second predetermined amplitude values. For example, a step at time t3-t4 is formed at level e between an immediately preceding portion of the pulse signal at level b and an immediately following portion of the pulse signal at level a. This step at level e, between the first and second predetermined amplitude values at levels a and b, causes the pulse signal to be formed in a step-like wave.

With this structure of the claimed present invention, the pulse pattern generator can freely change the eye closure set by the amplitude-value setting unit so as to comply with stress tests of various types of telecommunication standards. This enables tests for various types of telecommunication standards by freely setting, not a standard itself as defined by the IEEE, but the eye closure so as to correspond to the respective standard. As a result, a remarkable advantage is achieved whereby a known disadvantage in the field, i.e., the required preparation of the same number of fourth order Bessel-Thomson filters as that of each standard of the eye closure in accordance with various types of telecommunication apparatus of different eye closure standards defined by stress tests, is avoided.

It is respectfully pointed out that both Nicolai et al and Hirano et al completely fail to disclose generating a pulse signal formed in a step-like wave, as according to the present invention as recited in amended independent claims 1 and 8.

Nicolai et al discloses a secure communications system including a pseudorandom signal generator 10 that generates pseudorandom signals based on a code from a code select 76. It is respectfully pointed out, however, that the pulse signal generator 10 in Nicolai et al does not generate a pulse signal formed in a step-like wave wherein at least one of a rise and fall of the pulse signal is changed in a step-like manner in a

predetermined bit string between first and second predetermined amplitude values to provide a step at an amplitude between the first and second predetermined amplitude values. Indeed, the generated signals shown in Fig. 10 do not include any such step.

Moreover, the presence of the step at an amplitude between the first and second predetermined amplitude values results from an adjustment in the amplitude of the pulse signal via the amplitude-value setting unit, as according to the present claimed invention. Nicolai et al fails to discloses any such adjustment of the amplitude of the pulse signal upon selection of the code from code select 76, and in fact, when a code is selected by the user, the pulse pattern is merely changed to another pattern at a constant amplitude without adjusting the amplitude of the pulse signal to form a step-like wave with a step between first and second predetermined amplitude values.

Still further, with respect to Hirano et al, it is noted that this reference discloses an amplitude-adjusting device that adjusts the amplitude of a shaped one-bit data signal, but does not adjust the amplitude to provide a pulse signal formed as a step-like wave wherein a rise and/or fall of the pulse signal is changed between first and second predetermined amplitude values to provide a step at an amplitude between the first and second predetermined amplitude values, as according to the present claimed invention.

Moreover, Hirano et al does not disclose or suggest adjusting the amplitude of a pulse signal to enable formation of a step-like wave with a step at an amplitude level between first and second predetermined amplitude values using an amplitude-value setting unit, but rather discloses adjusting the amplitude in response to an error signal such that an area defined by a waveform of each pulse of the output data signal is constant (see column 2, lines 24-27 and Figs. 4A and 4D wherein S1 is set in signal Da' shown in Fig. 4D to be equal in area to S1' in the clock signal shown in Fig. 4A).

Still further, it is respectfully pointed out that the amplitude-adjustment pulse signal Da' formed in Hirano et al is not directed to a lowpass filter to be smoothed, as according to the present claimed invention, but rather is directed to an active filter 5 which differs from a lowpass filter.

In view of the foregoing, it is respectfully submitted that even if the teachings of Nicolai et al and Hirano et al were combinable in the manner suggested by the Examiner, such combination would still not achieve or render obvious the features of the present invention as recited in amended independent claims 1 and 8 whereby the pulse generating unit generates a pulse signal formed in a step-like wave in which at least one of a rise and fall of the pulse signal is changed in a step-like manner in a predetermined bit string between first and

second predetermined amplitude values to provide a step at an amplitude between the first and second predetermined amplitude values, and whereby the lowpass filter smooths the pulse signal formed in the step-like wave and outputs a smoothed pulse signal.

In addition, it is respectfully submitted that it would not have been obvious to modify Nicolai et al in view of Hirano et al in order to arrive at the present claimed invention because both Nicolai et al and Hirano et al relate to technical fields that are different than the present claimed invention. Namely, the claimed present invention relates to a pulse pattern generator and a communication device evaluation system utilizing the same, wherein a stress test is carried out by changing the eye closure in the field of measurement, whereas Nicolai et al relates to communication systems for the transmission of information in secure form, and more specifically to a technique of realizing a secure telecommunications system by scrambling the contents of a call of telecommunications with pulse signals of a pseudorandom pattern and does not at all relate to the technical field of the present invention. And Hirano et al relates to a technique which provides one-bit data obtained by subjecting an input data signal to a sigma delta modulation, and a waveform shaper comprising a sigma delta D/A converter, and also does not relate to a pulse signal generator and a communication device evaluation system utilizing the same.

In view of the foregoing, it is respectfully submitted that amended independent claims 1 and 8, and claim 15 depending from amended independent claim 1, clearly patentably distinguish over Nicolai et al and Hirano et al, taken singly or in combination, under 35 USC 103 along with allowable claims 2-7 and 9-14.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

/Douglas Holtz/

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